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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/647,431	10/02/2000	Andreas Klug	112740-112	8643
29177	7590	02/01/2005		EXAMINER
BELL, BOYD & LLOYD, LLC				MILLS, DONALD L
P. O. BOX 1135				
CHICAGO, IL 60690-1135			ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/647,431	KLUG, ANDREAS
	Examiner Donald L Mills	Art Unit 2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 26 October 2004.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 11-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) Claim(s) _____ is/are allowed.
6) Claim(s) 11-20 is/are rejected.
7) Claim(s) _____ is/are objected to.
8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Irwin (5,862,136).

Regarding claims 11 and 20, Irwin discloses a telecommunications apparatus and method for transporting isochronous and asynchronous units over an outgoing TDM stream, which comprises:

Offering a fixed data pattern (Referring to Figure 6, idle coded octets. See column 15, lines 48 and 49;)

Transmitting ATM cells coming from the ATM communication layer into an ATM cell waiting list (Referring to Figure 6, ATM cells are received and stored in the asynchronous cell buffer 460. See column 15, lines 54-56;)

Transmitting, on demand, an ATM cell from the ATM waiting list to the requesting time-division multiplex communication terminal when a respectively oldest control signal represents the first status and transmitting the fixed data pattern to the requesting time-division multiplex communication terminal when the oldest control signal represents the second status (Referring to Figure 6, ATM cells are passed from the asynchronous cell buffer 460 when indicated by the

read counter **422** to demux **412** for transmission to the end-user and idle cells when there is surplus bandwidth. See column 15, lines 45-67 and column 16, lines 19-22; *) and*

Deleting the oldest control signal (Referring to Figure 6, read counter **422** has limited storage capacity thereby removing the oldest control signal.)

Irwin does not disclose *generating a control signal sequence with a clock rate corresponding to the overall payload cell rate C_{RN} of the N time-division multiplex communication terminals, whereby the control signals in the control signal sequence represent one of a first and a second status.*

Irwin teaches a method and apparatus for transporting isochronous and synchronous units over an outgoing TDM stream, which operates by buffering incoming cells for transmission over outgoing time slots. Thereby, operating ahead of time to transmit ATM cells over time slots.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement a control signal sequence in the system of Irwin. One of ordinary skill in the art at the time of the invention would have been motivated to do so in order to implement a straight forward method/apparatus for instructing downstream controllers to forward/transmit cells over specified time slots. Both Irwin and the instant invention operate ahead of the actual output time. One could have easily used a control sequence to instruct the mechanism to output cells over time slots since some instrument must be used to determine time slots, and a sequence or mapping is both straightforward and easy.

Regarding claim 12 as explained in the rejection of claim 11, Irwin teaches all of the claim limitations of claim 11 (parent claim).

Irwin does not disclose allocating a control signal that represents the first status to each ATM cell of the ATM waiting list in the control signal sequence; carrying out a check, when a new control signal of the control signal sequence is generated in coincidence with the prescribed clock rate to see whether an ATM cell to which no control signal representing the first status is allocated is still present in the ATM waiting list; generating a control signal representing the first status when an ATM cell to which no control signal representing the first status is allocated is still present in the ATM waiting list; and generating a control signal representing the second status when an ATM cell to which no control signal representing the first status is allocated is not present in the ATM waiting list.

Irwin teaches a method and apparatus for transporting isochronous and synchronous units over an outgoing TDM stream, which operates by buffering incoming cells for transmission over outgoing time slots. Thereby, operating ahead of time to transmit ATM cells over time slots.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement a control signal sequence with corresponding status's to represent both active and idle traffic in the system of Irwin. One of ordinary skill in the art at the time of the invention would have been motivated to do so in order to implement a straight forward method/apparatus for instructing downstream controllers to forward/transmit cells over specified time slots. Both Irwin and the instant invention operate ahead of the actual output time. One could have easily used a control sequence to instruct the mechanism to output cells over time slots since some instrument must be used to determine time slots, and a sequence or mapping is both straightforward and easy.

Regarding claim 13 as stated above in the rejection statement of claim 11, Irwin teaches all of the claim limitations of claim 11 (parent claim).

Irwin does not disclose *wherein the control signal representing the first status is represented by a logical “1” and the control signal representing the second status is represented by a logical “0”*.

Irwin teaches a method and apparatus for transporting isochronous and synchronous units over an outgoing TDM stream, which operates by buffering incoming cells for transmission over outgoing time slots. Thereby, operating ahead of time to transmit ATM cells over time slots.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement a control signal sequence comprising a logical “1” representing an active cell and a logical “0” representing an idle cell in the system of Irwin. One of ordinary skill in the art would have been motivated to do so in order to make a clear distinction between the control signals for a straight forward method/apparatus for instructing downstream controllers to forward/transmit cells over specified time slots. Both Irwin and the instant invention operate ahead of the actual output time. One could have easily used a control sequence to instruct the mechanism to output cells over time slots since some instrument must be used to determine time slots, and a sequence or mapping is both straightforward and easy.

Regarding claim 14 as stated above in the rejection statement of claim 11, Irwin teaches all the claim limitations of claim 11 (parent claim).

Irwin does not disclose *wherein the control signal sequence has a length of up to 3 •N signals*.

Irwin teaches a method and apparatus for transporting isochronous and synchronous units over an outgoing TDM stream, which operates by buffering incoming cells for transmission over outgoing time slots. Thereby, operating ahead of time to transmit ATM cells over time slots.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement a control signal sequence with length $3 \bullet N$ in the system of Irwin. One of ordinary skill in the art would have been motivated to do so in order to implement a sequence long enough to account for system delay. And, to act as a straightforward method/apparatus for instructing downstream controllers to forward/transmit cells over specified time slots. Both Irwin and the instant invention operate ahead of the actual output time. One could have easily used a control sequence to instruct the mechanism to output cells over time slots since some instrument must be used to determine time slots, and a sequence or mapping is both straightforward and easy.

Regarding claims 15, 16, and 17 as explained in the rejection of claim 11, Irwin teaches all of the claim limitations of claim 11 (parent claim).

Irwin does not disclose *the method further comprising the step of enabling a cell transmission from the ATM communication layer into the ATM waiting list when the plurality of ATM cells present in the waiting list minus the plurality of control signals of the control signal sequence representing the first status is $\leq X$ (Claim 15)/wherein $X \geq 1$ (Claim 16)/wherein $X = 1$ (Claim 17).*

Irwin teaches a method and apparatus for transporting isochronous and synchronous units over an outgoing TDM stream, which operates by buffering incoming cells (waiting list) for

transmission over outgoing time slots. Thereby, operating ahead of time to transmit ATM cells over time slots.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement a control signal sequence and preventing buffer overflow based on the difference between the number of buffered cells and scheduled cells being less than or equal to one. One of ordinary skill in the art would have been motivated to do so in order to implement a straight forward method/apparatus for instructing downstream controllers to forward/transmit cells over specified time slots and to prevent buffer overflow by ensuring the transmission rate is equivalent to the reception rate. And, to act as a straightforward method/apparatus for instructing downstream controllers to forward/transmit cells over specified time slots. Both Irwin and the instant invention operate ahead of the actual output time. One could have easily used a control sequence to instruct the mechanism to output cells over time slots since some instrument must be used to determine time slots, and a sequence or mapping is both straightforward and easy.

Regarding claim 18 as explained in the rejection of claim 11, Irwin teaches all of the claim limitations of claim 11 (parent claim).

Irwin does not disclose *wherein the N time-division multiplex terminals are uncorrelated.*

Irwin teaches a method and apparatus for transporting isochronous and synchronous units over an outgoing TDM stream, which operates by buffering incoming cells for transmission over outgoing time slots.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement multiple multiplexers in the system of Irwin. One of ordinary skill in the

art at the time of the invention would have been motivated to do so in order to implement a system which supports high levels of user traffic. An added benefit of doing so would result in increased provider revenue due to increased traffic capacity.

Regarding claim 19 as explained in the rejection of claim 11, Irwin teaches all of the claim limitations of claim 11.

Irwin does not disclose *the method further comprising the step of dividing the ATM cells and the cells containing the fixed data pattern onto the N communication terminals according to a round-robin method.*

Irwin teaches a method and apparatus for transporting isochronous and synchronous units over an outgoing TDM stream, which operates by buffering incoming cells for transmission over outgoing time slots.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement multiple multiplexers with round-robin selection in the system of Irwin. One of ordinary skill in the art at the time of the invention would have been motivated to do so in order to implement a system which supports high levels of user traffic distributed among several multiplexers to avoid system overload. An added benefit of doing so would result in increased provider revenue due to increased traffic capacity.

Response to Arguments

3. Applicant's arguments with respect to claims 11-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald L Mills whose telephone number is 571-272-3094. The examiner can normally be reached on 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Donald L Mills


January 28, 2005


JOHN PEZZLE
PRIMARY EXAMINER